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## Emotion Regulation in Infancy and Attachment Classification at 15 Months

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EMOTION REGULATION IN INFANCY AND ATTACHMENT CLASSIFICATION AT 15 MONTHS

by

Nora Tucker

A thesis submitted in partial fulfillment of the requirements  
for graduation with Honors in the Psychology

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Grazyna Kochanska  
Thesis Mentor

Spring 2019

All requirements for graduation with Honors in the  
Psychology have been completed.

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Shaun Vecera  
Psychology Honors Advisor

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A thesis submitted in partial fulfillment of the requirements  
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### Abstract

We examined early emotion regulation in children with different future attachment classifications with both mothers and fathers in 102 community families. Emotion regulation was observed in three standard laboratory anger paradigms at 7 months. Children's attachment security with parents was assessed in the Strange Situation Paradigm at 15 months. In mother-child and father-child dyads, secure children (B) did not differ from insecure children (avoidant, A, resistant, C, disorganized/unclassifiable, D/U, all combined) in their emotion regulation scores. However, when the classification with mothers was considered, children who were classified as insecure resistant (C) with mothers had significantly lower scores than secure (B) and avoidant (A) children. There were no differences in emotion regulation among children with different attachment classifications with fathers. The findings inform the research on relations among child temperament, attachment, and emotion regulation.

### Emotion Regulation in Infancy and Attachment Classification at 15 Months

Ever since Bowlby (1969/1982) emphasized the importance of early bonds between parents and infants, the construct of attachment has been one of the main foci of social-emotional development research. Attachments are strong and enduring affectional ties, characterized by a desire to maintain proximity and to interact often. The attachment bond is an adaptive product of evolution, as it promotes physical proximity between the infant and the caregiver. This enhances the child's chances for survival, as the caregiver provides food, warmth, and protection from danger and stress. Children's secure attachments provide them with a sense of confidence to explore their environment and to seek comfort in stressful or frightening situations. Although parents and children are very well equipped to enter an attachment relationship, not all parent-child dyads develop an optimal, or secure attachment organization.

Ainsworth and Wittig (1969) proposed a carefully scripted paradigm to assess individual differences in the quality or organization of children's attachments to their caregivers. The Strange Situation Paradigm (SSP) has since become "the gold standard" for children aged 12-18 months. SSP involves eight three-minute episodes. In the first episode, the experimenter explains the procedure and introduces the parent and child to the room. In the second episode, the parent and child are alone in the room. In the third episode, a stranger comes in, sits silently, talks to parent, and plays with the child. In the fourth episode (the first separation), the parent leaves and the child is left in the room with the stranger. In the fifth episode (the first reunion), the parent returns and the stranger leaves. In the sixth episode (the second separation), the parent leaves and the child is alone in the room. In the seventh episode, the stranger returns. In the eighth and final episode (the second reunion), the parent returns and the stranger leaves.

Highly trained coders observe the child's behavior in SSP toward the stranger and parent,

exploration of the environment, and reactions to separations and reunions, and integrate this information to produce a qualitative assessment of the organization of the child's attachment as secure (B), insecure avoidant (A), insecure resistant (C), or insecure disorganized (D). A secure infant actively explores the environment; he or she may be distressed upon separation, but greets the parent with warmth and enthusiasm, and actively seeks comfort from the parent. That comfort is effective, and the infant is quickly soothed and returns to play. An insecure avoidant infant typically shows little distress upon separation and often actively avoids/ignores the parent upon reunion. An insecure resistant infant may stay close or cling to the parent, is typically reluctant to explore, and becomes extremely distressed upon separation. Upon reunion, he or she is ambivalent, and mixes contact seeking with contact resistance. The child is hard to soothe, and parental comfort is not effective. Finally, an insecure disorganized infant shows an incoherent pattern of behavior, lacking an overall strategy, and exhibits odd, disconnected behaviors that are difficult to classify (Main & Solomon, 1990).

Secure attachments have been consistently associated with adaptive developmental outcomes. A very large body of research has demonstrated modest but reliable associations of early security with future developmental outcomes (Thompson, 2008, 2016). For example, secure infants are better problem solvers at 2 years old (Frankel & Bates, 1990) and display more positive and fewer negative emotions (Kochanska, 2001). Secure infants are more likely to be social leaders at age 3½, whereas children who were insecurely attached infants are socially and emotionally withdrawn (Waters, Wippman, & Sroufe, 1979).

Bowlby (1969/1982) considered emotions to be a key component of attachments. Secure attachment relationships provide important support for children's adaptive regulation of emotions, especially in stressful situations; emotion regulation (ER) is considered an important

correlate of attachment classifications. ER is the ability to control and regulate one's experience and expression of emotion. Even very young children can use a variety of strategies to regulate their emotions, such as social referencing, distancing themselves from stressful stimuli, self-distraction, or thumb sucking. ER is a key adaptive skill, and children with ER difficulties face a variety of negative outcomes.

A very large and rapidly growing literature has explored origins and implications of ER. The quality of infants' attachment has been broadly linked with their ER strategies. Children with secure attachments have been shown to have more adaptive ER from infancy to adolescence (Thompson, 2016). For example, Gilliom, Shaw, Beck, Schonberg, and Lukon (2002) found that securely attached children were more likely to use constructive anger management strategies at age 3 ½, and Contreras, Kerns, Weimer, Gentzler, and Tomich (2000) found that securely attached children in middle childhood used more constructive coping skills. Further, they found that constructive coping mediated the relation between attachment and peer competence.

The origins of different ER styles in children with distinct attachment patterns have been linked to their expectations for how their caregivers, or attachment figures, will respond to their emotions. Those expectations are formed as a result of the history of the relationship between the child and the caregiver. Patterns of children's behavior in SSP reflect, in part, those histories and the child's expectations. Securely attached children expect their attachment figures to respond sensitively and helpfully to their emotions and to receive effective comfort; consequently, they develop a style of open emotion expression and do not hesitate to seek comfort from the caregiver when distressed. Receiving early reliable help and support from the caregiver aids early regulation of emotion, when children are not yet able to regulate on their own. Gradually, secure children come to develop their own adaptive ER skills.

Insecurely attached children also develop expectations with regard to their caregivers' response to their emotions, and respectively adapt their ER styles. When parents are dismissive or critical toward their children's emotion expression, children are more likely to form insecure attachments and have difficulties with emotion regulation. Insecure avoidant (A) children appear to minimize emotion expression. In SSP, these children do not seek contact with the parent when distressed and their regulatory behaviors focus on minimizing emotion expression. Presumably, this reflects their expectations that support and comfort would not be forthcoming. In contrast, insecure resistant (C) children appear to heighten or exaggerate emotion expression. In SSP, these children show exaggerated distress and dysregulation of emotion (Cassidy, 1994; Cassidy & Berlin, 1994). This pattern has been hypothesized to reflect the child's experience with an unpredictable caregiver, who has responded to child distress erratically. Consequently, a heightened emotion expression is seen as a strategy that might maximize chances for receiving comfort.

In this study, we aim better to understand the relation between ER and attachment. Previous research has established that various ER patterns correlate with concurrent attachment classifications and are likely, in part, products of earlier attachments. However, there is surprisingly little known about individual differences in infants' ER, assessed in the first year, and thus *preceding* assessments of their attachments with their caregivers.

The idea that attachment classifications may reflect pre-existing differences in children's emotional predispositions, or temperaments, has a long history. In the 1980s, a well-known controversy took place with regard to the relation between children's temperament and their behavior in the SSP. The issue was largely polarized, with some researchers believing that children's behavior in the SSP was the result of their relationship with the caregiver and reflected

the organization of attachment (Sroufe, 1985), and others seeing behavior in the SSP as reflecting, at least in part, the child's temperament (Goldsmith & Alansky, 1987; Kagan, 1982). Sroufe (1985) strongly argued that attachment organization, as assessed in SSP, reflects the history of the relationship between the child and the caregiver, and not the child's temperament. He explained that there are a wide range of behaviors that may reflect different temperaments within each attachment classification. He reinforced Ainsworth's belief that separation distress alone is not enough to provide an attachment classification. Specifically, both C children and B children may experience a lot of distress upon separation, but they differ in contact resistance upon reunion, which distinguishes their classifications. Some theorists believe that temperament does not directly affect attachment, because a child with a difficult temperament could still form a secure attachment, given provision of sensitive and responsive parenting. Others believe that temperament may affect attachment security – indirectly by impacting parent-child interactions as well as directly by affecting the way the child behaves in SSP (Belsky & Fearon, 2008). Goldsmith and Alansky's (1987) meta-analysis demonstrated comparable associations between sensitive parenting and security of attachment and between temperamental trait of proneness to distress and resistant behavior in SSP.

In an attempt to integrate and reconcile those contrasting views, Kochanska (1998) found that parent responsiveness predicted security vs insecurity, but not type of insecurity. Secure children received more responsive care than insecure children, avoidant and resistant (B vs. A and C); however, avoidant and resistant children did not differ in their history of responsive care. Temperament (fearfulness) predicted type of insecurity, but not security vs insecurity. Avoidant children were less fearful than resistant children (A vs. C); but secure children did not differ from insecure children (B vs. A and C) in terms of fearfulness. Since then, more studies have

demonstrated that both parent-child relationship and child temperament contributed to children's behavior in SSP. Further research has supported the theory that temperament affects how insecurity is expressed (Braungart-Rieker, Garwood, Powers, & Wang, 2001).

Most of the extant research on temperament as a contributor to individual differences seen in SSP has focused on broad dimensions of child temperament, such as fearfulness, anger proneness, or the construct of "difficult temperament". However, to our knowledge, few, if any studies have examined specifically individual differences in young infants' ER capacities, assessed prior to SSP, in relation to their future classifications as secure, or insecure avoidant, resistant, and disorganized. This appears to be a significant gap, given that children's ER strategies have been conceptually closely linked to the secure and insecure patterns. The goal of the present work is to address this gap by examining links between the ER strategies that infants deployed in mildly stressful, scripted episodes in the laboratory, observed at 7 months, and their classifications in SSP at 15 months. Consequently, we explored whether early differences in infants' ER, preceding attachment organization, distinguish children classified as differing in attachment patterns approximately a year later.

## Method

### *Participants*

One hundred and two two-parent community families of normally developing infants (most born in 2001) volunteered for this longitudinal study. They responded to ads and flyers posted throughout the community and mailed to daycare centers, pediatric practices, and other venues in a Midwestern state. Both parents had to be willing to participate, children had to be biological offspring, and the parents had to commit to speak English during the research

sessions. The families represented a broad demographic range. Almost 25% of mothers had a high school education (or less), 54% had an associate or college degree, and 21% had postgraduate education. For fathers, 30% had a high school education (or less), 51% had an associate or college degree, and 20% had postgraduate education. There was also a broad range in annual family income: 8% earned less than \$20,000, 17% earned between \$20,000 and \$40,000, 26% earned between \$40,000 and \$60,000, and 49% earned over \$60,000.

With regard to mothers' ethnic background, 90% were White, 3% Hispanic, 2% African American, 1% Asian, 1% Pacific Islander, and 3% other non-White. For fathers, 84% were White, 8% Hispanic, 3% African American, 3% Asian, and 2% other non-White. In 20% of families, one or both parents were non-White. Parents signed informed consents at the entry to the study. The University of Iowa IRB approved the study (Developmental Pathways to Antisocial Behavior: A Translational Research Program, 200107049).

This paper draws from data collected at the first assessment at 7 months ( $N = 102$ , 51 girls) and the next assessment at 15 months ( $N = 101$ , 51 girls). ER was observed at 7 months, and attachment organization was assessed at 15 months. The sessions were conducted in the child's home at 7 months and in the laboratory at 15 months. At each time, there was one session for the child and the mother, and one session for the child and the father. Young female research assistants, experimenters (Es), conducted the sessions.

### *Measures*

*ER in anger paradigms, 7 months.* Three standardized anger paradigms from Laboratory Temperament Assessment Battery (Lab-Tab, Goldsmith & Rothbart, 1993) were administered to assess the infants' ER: Gentle Arm Restraint, Toy Retraction, and Car Seat. In Gentle Arm Restraint, the baby was seated in a high chair and E placed an attractive toy in front of him/her.

Once the child became engaged with the toy, E held the baby's arms to his/her side for up to 30 sec. There were two trials (unless the baby became too upset). In Toy Retraction, the baby was seated in a high chair and E placed an attractive toy in front of him/her. Once the child became engaged with the toy, E held the toy just out of the baby's reach for up to 15 sec. There were three trials (unless the baby became too upset). In Car Seat, the baby was strapped into a relatively confining car seat by his or her parent and strapped in tightly. The parent and E stood behind the car seat just out of the baby's view for 60 sec (one trial). If the child became too distressed at any point, the trial was cut short.

The infants' ER was coded in each anger paradigm. In Gentle Arm Restraint and Toy Retraction, ER was coded for each trial. In Car Seat, ER was coded for the entire episode (one trial). ER was scored on a scale of 0-4 (Perry, Calkins, Dollar, Keane, & Shanahan, 2018). Coders considered intensity, length, and variability of distress and number of strategies tried for each episode as a whole. The scores were given based on the following criteria.

0: Unregulated (dysregulated): Child demonstrates no control of distress responses to stimuli.

1: Mostly unregulated: Child demonstrates some control of distress through some slight variation in affective response levels, or by trying multiple regulation strategies. This child is mostly distressed, about to "fall apart" but not quite.

2: Somewhat regulated: Child can control distress and use regulation techniques for some of the task or can regulate for much of the task but only at a moderate level (continues to show some distress). This child often looks like she/he might cry most of the time and may come to look neutral a few times. A high intensity of distress may be reached quickly but short-lived.

3: Mostly regulated: Child may show some inability to control distress or to use

distraction, but in general is well regulated.

4: Well regulated: Child seems to completely regulate distress responses and distracts him/herself away from the source of distress most of the time.

Reliability of coding was obtained for 15 cases from each paradigm. For Gentle Arm Restraint, kappas ranged from .67 to .78, weighted kappas ranged from .80 to .86, and intra-class correlations (ICCs) ranged from .91 to .94. For Toy Retraction, kappas ranged from .68 to .79, weighted kappas ranged from .81 to .87, and ICCs ranged from .92 to .94. For Car Seat, kappas ranged from .73 to .91, weighted kappas ranged from .89 to .96, and ICCs ranged from .97 to .99.

To reduce the data, for Gentle Arm Restraint and for Toy Retraction, the ER scores were averaged across trials. Further, those three scores were averaged into a composite ER score.

Descriptive data are in Table 1.

*Attachment organization, 15 months.* The SSP was conducted as the first paradigm in the laboratory session with each parent, according to the standard guidelines. Professional coders, blind to all information about the participants, coded child behavior according to the standard criteria (proximity seeking, contact maintaining, resistance, and avoidance during the reunions). They also rated distress during the separation episodes and disorganization. Based on those codes, they ultimately classified each child as secure (B), avoidant (A), resistant (C) or disorganized (D). Coding reliability, kappas, were .85 for secure versus insecure, and .78 for the four main attachment categories (B, A, C, and D). Unclassifiable children (U) were combined with D (D/U).

In mother-child dyads, 56 children were classified as secure, 12 as avoidant, 19 as resistant and 14 as disorganized or unclassifiable. In father-child dyads, 66 children were

classified as secure, 15 as avoidant, six as resistant, and 13 as disorganized or unclassifiable (one child did not participate in SSP with the father). There were no significant differences in attachment classification between male and female children. In addition, there was no concordance between mother-child attachment classification and father-child attachment classification.

## Results

*Group comparisons of avoidant (A), secure (B), resistant (C), and disorganized (D/U) children.* We conducted an ANOVA, with the ER scores as the dependent variable and attachment category (four levels, A, B, C, D/U) and child sex (two levels) as the between-subject factors, to compare the ER scores in the groups of children varying in their attachment classifications, for mother-child dyads and for father-child dyads. For mother-child dyads, the main effect of child sex was not significant,  $F(1,93) < 1$ , ns. The main effect of attachment category was significant,  $F(3,93) = 4.69$ ,  $p < .01$ . The interaction of sex and attachment category was not significant,  $F(3,93) = 1.38$ , ns.

Consequently, we followed up with a oneway ANOVA using Tukey's HSD to probe this effect. Resistant children had the lowest ER scores (see Table 2). Their scores were significantly lower than those of children classified as avoidant (A),  $p < .01$  and secure (B),  $p < .05$ . The remaining comparisons were not significant (A vs. B, A vs D/U, C vs. D/U, and B vs. D/U).

For father-child dyads, a parallel ANOVA failed to produce any significant effects. The main effect of child sex was not significant,  $F(1,92) = 1.02$ , ns. The main effect of attachment category was not significant,  $F(3,92) = 1.53$ , ns. The interaction of sex and attachment category was not significant,  $F(3,92) < 1$ , ns.

*Group comparisons of secure (B) and insecure (A, C, D/U) children.* We also conducted

ANOVAs with ER as the dependent variable and the overall attachment security (two levels, B vs. A, C, D/U) and child sex (two levels) as the between-subject factors, to compare the ER scores in secure and insecure children, again for mother-child dyads and for father-child dyads. There were no significant effects for either mother-child dyads or father-child dyads.

*Correlations between ER and a continuous measure of C vs. A dimension.* We also conducted a supplemental analysis of the relation between children's ER and a continuous measure of C vs. A dimension. That continuous measure was created following the formula by Richters, Waters, and Vaughn (1988), which specified weights given to the child's behavior during the reunions (proximity seeking, contact maintaining, resistance, avoidance, and crying). Higher scores denote being a more prototypical C (resistant) child, and lower scores – being a more prototypical A (avoidant) child. Those scores (one with the mother and one with the father) were computed for insecure children only.

For mother-child dyads, higher scores were associated with lower ER scores,  $r(30) = -.58$ ,  $p < .01$ . For father-child dyads, the relation was in the similar direction, but fell short of significance,  $r(20) = -.42$ ,  $p < .061$ . These results are consistent with the results of the group comparisons that demonstrated that children classified as C had the lowest levels of ER as infants.

## Discussion

This study adds to our understanding of the relation between attachment and ER by examining how early ER skills may distinguish children with different future attachment classifications. Because ER skills are often seen as linked to biologically based patterns of emotionality in general, and thus to temperament, this study also contributes to the longstanding debate over whether behavior in SSP reflects caregiving or temperament. Our findings indicate

that differences in ER, observed in the first months of life, are meaningfully related to patterns of attachment organization in the second year, although only in mother-child and not father-child dyads.

Furthermore, our specific findings contribute to our understanding of children classified as insecure resistant (C). Previous research has demonstrated that C children tend to exaggerate emotion expression and have difficulties regulating emotions. These behaviors have been thought to develop because of inconsistent parenting. Our study demonstrates that these children's difficulty in regulating negative emotions, observed in SSP, may be, in part, due to developmental continuity of their ER strategies already present in infancy. We examined both a categorical measure of attachment organization and a continuous measure, and the results of both analyses were consistent. Children classified as resistant with their mothers had lower ER skills as infants, compared to those classified as secure or avoidant. As well, the higher the child scored on the C vs. A (resistance vs. avoidance) continuous dimension, the lower his or her ER skills had been in infancy.

Our findings raise a possibility that the same biologically based predisposition underlies difficulties in infants' regulation of negative emotion, especially frustration, and their classification in the SSP at 15 months (and perhaps future ER problems in resistant children). Another possibility, however, would be that the same parenting pattern – early capricious, variable, unreliable responsiveness – contributes to infants' emotional dysregulation at 7 months and to the future insecure resistant pattern of attachment.

Robust behavioral measures were a strength of this work. The SSP is a “gold standard” for attachment assessment. We adapted behavioral measures of ER, developed for toddlers (Perry et al., 2018), for the use with infants, utilizing already available data from another “gold

standard”, LAB-TAB (Goldsmith & Rothbart, 1993). ER was observed in several paradigms and aggregated, increasing our confidence in its robustness. The longitudinal nature of our study allowed us to examine individual differences in ER in relation to future attachment classification.

Finally, having parallel data on mother-child and father-child attachment organization was a rare and unique strength of this research. There is limited research on early temperament and attachment with both parents. The majority of this research focuses solely on mother-child attachment. However, previous research has demonstrated the importance of father-child attachment. Cabrera, Volling, and Barr (2018) discuss the importance of studying fathers. They argue that family systems theories provide optimal insights into children’s development, and therefore fathers should be included. Furthermore, they point out that effects of father-child and mother-child relationships on development may not be the same, so studying both is highly informative. Indeed, in this study, the significant relation between ER and future attachment organization was only found for children and mothers. We note that the continuous measure of C vs. A correlated negatively with ER in both mother- and father-child relationships, although the relation for the latter was marginal. Finding clearer effects for mother-child relationships than for father-child relationships is not uncommon in research on correlates of attachment, particularly with very young children. We do not know what accounts for the difference in findings between mother-child and father-child dyads. In this study, one possibility is the low number of C attachments in father-child relationships.

Our study had several limitations. One limitation was modest ethnic diversity of our families. This limits the generalizability of our results. In addition, our sample came from typically developing children in community families. Problems with ER are common for children referred to clinics; in fact, ER difficulties have been recognized as an important

transdiagnostic marker of maladaptation and linked with several forms of psychopathology.

Therefore, a sample of children enriched for elevated behavioral and emotional problems would likely produce a wider range of ER abilities and may elucidate more translational implications.

Further research should follow the long-term developmental trajectory of children with low ER scores in infancy and insecure-resistant attachment at 15 months. This would provide insights into their varying potential outcomes – those who develop difficulties and those who embark on positive paths. Perry and colleagues (2018) found that lower levels of ER at toddler age predicted children’s increasing trajectory of externalizing behaviors throughout childhood and adolescence. Note that a typical adaptive trajectory is one of decreasing externalizing behaviors over time. Our work may contribute to our understanding of these developmental trajectories by examining ER in infancy and the role of attachment.

Further research should also examine the role of parenting for the links between ER and attachment. Perhaps for children with ER difficulties, parents’ responsiveness in infancy is particularly important and might offset the risks based on their biological vulnerabilities. There is already a large body of research on how different temperamental characteristics affect later attachment. In addition, there is a lot of work linking attachment to concurrent or later ER. We believe that our research adds to this body of work by specifically examining ER measured prior to of the assessment of attachment.

## References

- Ainsworth, M. D. S., & Wittig, B. (1969). Attachment and exploratory behavior of one-year-olds in a Strange Situation. In B. Foss (Ed.), *Determinants of infant behavior* (Vol. 4, pp. 111–136). London: Methuen.
- Belsky, J., & Fearon, R. M. P. (2008). Precursors of attachment security. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 295-316). New York, NY, US: The Guilford Press.
- Bowlby, J. (1969/1982). *Attachment and loss: Attachment* (vol.1, 2nd ed.). New York, NY: Basic Books. 252-270
- Braungart-Rieker, J., Garwood, M., Powers, B., & Wang, X. (2003). Parental sensitivity, infant affect, and affect regulation: Predictors of later attachment. *Child Development, 72*, 252-270.
- Cabrera, N., Volling, B., & Barr, R. (2018). Fathers are parents, too! Widening the lens on parenting for children's development. *Child Development Perspectives, 12*, 152-157.
- Cassidy, J. (1994). Emotion regulation: Influences of attachment relationships. In N. A. Fox (Ed.), *The development of emotion regulation: Biological and behavioral considerations. Monographs of the Society for Research in Child Development, 59*, 2–3(Serial No. 240).
- Cassidy, J., & Berlin, L. J. (1994). The insecure/ambivalent pattern of attachment: Theory and research. *Child Development, 65*, 971-991.
- Contreras, J. M., Kerns, K. A., Weimer, B. L., Gentzler, A. L., & Tomich, P. L. (2000). Emotion regulation as a mediator of associations between mother-child attachment and peer relationships in middle childhood. *Journal of Family Psychology, 14*, 111–124.

- Frankel, K., & Bates, J. E. (1990). Mother-toddler problem solving: Antecedents in attachment, home behavior, and temperament. *Child Development, 61*, 810-819.
- Gilliom, M.E., Shaw, D.S., Beck, J.E., Schonberg, M.A., & Lukon, J.L. (2002). Anger regulation in disadvantaged preschool boys: Strategies, antecedents, and the development of self-control. *Developmental Psychology, 38*, 222-235.
- Goldsmith, H. H., & Alansky, J. A. (1987). Maternal and infant temperamental predictors of attachment: A meta-analytic review. *Journal of Consulting and Clinical Psychology, 55*, 805-816.
- Goldsmith, H. H., & Rothbart, M. K. (1993). *The Laboratory Temperament Assessment Battery: Locomotor Version 2.02 (Lab-TAB)*. Madison, WI: University of Wisconsin Press.
- Kagan, J. (1982). *Psychological research on the human infant: An evaluative summary*. New York: W. T. Grant Foundation.
- Kochanska, G. (1998). Mother-child relationship, child fearfulness, and emerging attachment: A short-term longitudinal study. *Developmental Psychology, 34*, 480-490.
- Kochanska, G. (2001). Emotional development in children with different attachment histories: the first three years. *Child Development, 72*, 474-490.
- Main, M., & Solomon, J. (1990). Procedures for identifying infants and disorganized/disoriented during the Ainsworth Strange Situation. In Greenberg, M. T., Cicchetti, D., & Cummings, E. M. (Eds.), *Attachment in the preschool years: Theory, research and intervention* (pp. 134- 146). Chicago: University of Chicago Press
- Perry, N., Calkins, S., Dollar, J., Keane, S., & Shanahan, L. (2018). Self-regulation as a predictor of patterns of change in externalizing behaviors from infancy to adolescence. *Developmental Psychology, 30*, 497-510.

- Richters, J. E., Waters, E., & Vaughn, B. E. (1988). Empirical classification of infant-mother relationships from interactive behavior and crying during reunion. *Child Development, 59*, 512-522.
- Sroufe, L. A. (1985). Attachment classification from the perspective of infant-caregiver relationship and infant temperament. *Child Development, 56*, 1-14.
- Thompson, R. A. (2008). Early attachment and later development: Familiar questions, new answers. In Cassidy, J. & Shaver, P. R (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 348–365). New York: Guilford.
- Thompson, R. A. (2016). Early attachment and later development: Reframing the questions. In Cassidy, J. & Shaver, P. R (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (3rd ed., pp. 330–348). New York, NY: Guilford.
- Waters, E., Wippman, J., & Sroufe, L. A. (1979). Attachment, positive affect, and competence in the peer group: Two studies in construct validation. *Child Development, 50*, 821-829.

Table 1.

*Emotion Regulation at 7 Months: Descriptive Statistics*


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	Range	<i>M</i>	<i>SD</i>	<i>N</i>
Car Seat ER	0—4	2.51	1.36	102
Arm Restraint ER	1—4	3.23	.85	102
Toy Retraction ER	0—4	3.05	.78	101
ER Composite	1.33—4	2.93	.62	102

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ER=Emotion Regulation

Table 2

*Emotion Regulation at 7 Months for Children Differing in Their Attachment Classifications with their Mothers at 15 Months*

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	Attachment Classification with Mother, 15 Months							
	Avoidant (A)		Secure (B)		Resistant (C)		Disorganized (D)	
	<i>N</i> =12		<i>N</i> = 56		<i>N</i> =19		<i>N</i> =14	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Emotion Regulation								
(Composite)	3.32	.37	3.00	.57	2.55	.65	2.79	.73

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Table 3

*Emotion Regulation at 7 Months for Children Differing in Their Attachment Classifications with their Fathers at 15 Months*

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	Attachment Classification with Father, 15 Months							
	Avoidant (A)		Secure (B)		Resistant (C)		Disorganized (D)	
	<i>N</i> =15		<i>N</i> =66		<i>N</i> =6		<i>N</i> =13	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Emotion Regulation								
(Composite)	2.96	.65	2.98	.58	2.41	.84	2.87	.68

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